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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER MEONSKE, TONIA L	
			ART UNIT 2181	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/822,553	Applicant(s) JOHN ET AL.	
	Examiner Tonia L. Meonske	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 42-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Li et al., Improving Branch predictability in Java Processing (herein after referred to as Li).

3. Referring to claim 42, Li has taught an agree branch prediction apparatus, comprising:

- a. at least a first branch history shift register to store correlated branch history information associated with an execution of a plurality of user instructions (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2); and
- b. at least a second branch history shift register to store correlated branch history information associated with an execution of a plurality of operating system instructions (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2), wherein the first branch history shift register and the second branch history shift register are separated (page 1, abstract, the prediction register for the Gas and the Gshare are separated to yield an overall good performance of the entire hybrid predictor.).

4. Referring to claim 43, Li has taught the agree branch prediction apparatus of claim 42, as described above, and further comprising:

a. a Gshare branch predictor comprising the first branch history shift register and the second branch history shift register (page 1, abstract, page 21, first paragraph, Pages 9-10, section 4.1, The entire hybrid predictor is regarded as a Gshare predictor since the hybrid predictor performs Gshare predictions. The hybrid predictor also performs GAs predictions.).

5. Referring to claim 44, Li has taught an agree branch prediction apparatus, comprising:

a. a Gshare branch predictor comprising a first branch history shift register to store correlated branch history information associated with a first operating context selected from a preselected plurality of operating contexts (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, Gshare predictor for kernel prediction, where the plurality of contexts, or modes, are kernel and user.); and

b. a second branch history shift register included in the Gshare branch predictor, wherein the second branch history shift register is to store correlated branch history information associated with a second operating context selected from the preselected plurality of operating contexts (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, GAs predictor for user prediction, where the plurality of contexts, or modes, are kernel and user.).

6. Referring to claim 45, Li has taught a multi-hybrid branch prediction apparatus, comprising:

- a. at least a first branch history shift register to store correlated branch history information associated with an execution of a plurality of user instructions (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, GAs predictor for user instruction prediction, where the plurality of contexts, or modes, are kernel and user.); and
- b. at least a second branch history shift register to store correlated branch history information associated with an execution of a plurality of operating system instructions (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, Gshare predictor for kernel prediction, where the plurality of contexts, or modes, are kernel and user.), wherein the first branch history shift register and the second branch history shift register are separated (page 1, abstract, the prediction register for the Gas and the Gshare are separated to yield an overall good performance of the entire hybrid predictor.).

7. Referring to claim 46, Li has taught the multi-hybrid branch prediction apparatus of claim 45, as described above, and further comprising:

- a. a Gshare branch predictor comprising the first branch history shift register and the second branch history shift register (page 1, abstract, page 21, first paragraph, Pages 9-10, section 4.1, The entire hybrid predictor is regarded as a

Gshare predictor since the hybrid predictor performs Gshare predictions. The hybrid predictor also performs GAs predictions.).

8. Referring to claim 47, Li has taught a multi-hybrid branch prediction apparatus, comprising:

a. a Gshare branch predictor comprising a first branch history shift register to store correlated branch history information associated with a first operating context selected from a preselected plurality of operating contexts (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, The entire hybrid predictor, comprising the GAs and the Gshare predictors, is regarded as the claimed Gshare branch predictor. The hybrid predictor comprises at least two branch history shift registers, one for the Gshare predicting and one for the GAs predicting. Gshare is a Kernel operating context and GAs is a user operating context.); and

b. a second branch history shift register included in the Gshare branch predictor, wherein the second branch history shift register is to store correlated branch history information associated with a second operating context selected from the preselected plurality of operating contexts (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, The entire hybrid predictor, comprising the GAs and the Gshare predictors, is regarded as the claimed Gshare branch predictor. The hybrid predictor comprises at least two branch history shift registers, one for the Gshare predicting and one for the GAs

predicting. Gshare is a Kernel operating context and GAs is a user operating context.).

9. Referring to claim 48, Li has taught a bi-mode branch prediction apparatus, comprising:

a. at least a first branch history shift register to store correlated branch history information

associated with an execution of a plurality of user instructions (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, Gshare and GAs both have shift registers to perform their prediction.); and

b. at least a second branch history shift register to store correlated branch history information associated with an execution of a plurality of operating system instructions (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, Gshare and GAs both have shift registers to perform their prediction.), wherein the first branch history shift register and the second branch history shift register are separated (page 1, abstract, the prediction register for the Gas and the Gshare are separated to yield an overall good performance of the entire hybrid predictor.).

10. Referring to claim 49, Li has taught the bi-mode branch prediction apparatus of claim 48, as described above, and further comprising:

a. a Gshare branch predictor comprising the first branch history shift register and the second branch history shift register (page 1, abstract, page 21, first

paragraph, Pages 9-10, section 4.1, The entire hybrid predictor is regarded as a Gshare predictor since the hybrid predictor performs Gshare predictions. The hybrid predictor also performs GAs predictions.).

11. Referring to claim 50, Li has taught a bi-mode branch prediction apparatus, comprising:

a. a Gshare branch predictor comprising a first branch history shift register to store correlated branch history information associated with a first operating context selected from a preselected plurality of operating contexts (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, The entire hybrid predictor, comprising the GAs and the Gshare predictors, is regarded as the claimed Gshare branch predictor. The hybrid predictor comprises at least two branch history shift registers, one for the Gshare predicting and one for the GAs predicting. Gshare is a Kernel operating context and GAs is a user operating context.); and

b. a second branch history shift register included in the Gshare branch predictor, wherein the second branch history shift register is to store correlated branch history information associated with a second operating context selected from the preselected plurality of operating contexts (page 20, bulleted paragraph, page 21, first paragraph, page 9, Figure 2, The entire hybrid predictor, comprising the GAs and the Gshare predictors, is regarded as the claimed Gshare branch predictor. The hybrid predictor comprises at least two branch

history shift registers, one for the Gshare predicting and one for the GAs predicting. Gshare is a Kernel operating context and GAs is a user operating context.).

Response to Arguments

12. Applicant's arguments filed May 15, 2007 have been fully considered but they are not persuasive.

13. On page 6, Applicant argues in essence:

"The Applicant was unable to find any evidence of a split branch history shift register predictor implemented as part of an agree branch prediction apparatus, a multi-hybrid branch prediction apparatus, or a bi-mode branch prediction apparatus within the bounds of Li."

However, the claims do not specifically contain a split branch history shift register predictor implemented as part of an agree branch prediction apparatus, a multi-hybrid branch prediction apparatus, or a bi-mode branch prediction apparatus. If applicant would like specific limitations read into the claims, then Applicant should specifically claim those limitations. Therefore this argument is moot.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tonia L. Meonske whose telephone number is (571) 272-4170. The examiner can normally be reached on Monday-Friday with first Friday's off.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2181

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TLM

 08/06/2007

Tonia L. Meonske
August 2, 2007